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PATENT APPLICATION

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IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

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Confirmation No.: 9672

Application No.: 10/635,741

Examiner: Dailey, Thomas J.

Filing Date: 08/05/2003

Group Art Unit: 2152

Title: **METHOD AND SYSTEM FOR MANAGING COMPUTING RESOURCES**

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PO Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL OF APPEAL BRIEF

Transmitted herewith is the Appeal Brief in this application with respect to the Notice of Appeal filed on 10/03/2007.

☒ The fee for filing this Appeal Brief is \$510.00 (37 CFR 41.20).

☒ No Additional Fee Required.

(complete (a) or (b) as applicable)

The proceedings herein are for a patent application and the provisions of 37 CFR 1.136(a) apply.

☐ (a) Applicant petitions for an extension of time under 37 CFR 1.136 (fees: 37 CFR 1.17(a)-(d)) for the total number of months checked below:

☐ 1st Month
\$120

☐ 2nd Month
\$460

☐ 3rd Month
\$1050

☐ 4th Month
\$1640

☐ The extension fee has already been filed in this application.

☒ (b) Applicant believes that no extension of time is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition and fee for extension of time.

Please charge to Deposit Account 08-2025 the sum of \$ 510. At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account 08-2025 pursuant to 37 CFR 1.25. Additionally please charge any fees to Deposit Account 08-2025 under 37 CFR 1.16 through 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that may regulate fees.

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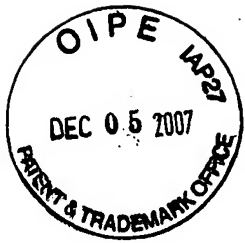
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appellant: Madhavan

Patent Application

Serial No.: 10/635,741

Group Art Unit: 2152

Filed: August 5, 2003

Examiner: Dailey, Thomas J.

For: METHOD AND SYSTEM FOR MANAGING COMPUTING RESOURCES

Appeal Brief

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Real Party in Interest

The assignee of the present invention is Hewlett-Packard Company.

Related Appeals and Interferences

There are no related appeals or interferences known to the Appellant.

Status of Claims

Claims 1-30 remain pending. Claims 1-2, 4-16, 18-25 and 27-30 have been rejected. Claims 3, 17 and 26 have been cancelled. This appeal involves Claims 1-2, 4-16, 18-25 and 27-30.

Status of Amendments

All proposed amendments have been entered. An amendment subsequent to the Final Action has not been filed.

Summary of Claimed Subject Matter

Independent Claims 1, 15 and 22 pertain to various embodiments for managing computing resources. For example, Independent Claim 1 recites,

A computing resource management method comprising:
establishing a pool of free computing resources in a computing system;
selecting a free computing resource from said pool of free computing resources to replace an operating computing resource in said computing system; and
configuring said selected free computing resource to operate in said computing system, after replacing said operating computing resource with said free computing resource in said computing system, wherein said free computing resources comprises resources that are not preconfigured for use in said computing system.

The instant application serial no. 10/635,741 describes an embodiment of "establishing a pool of free computing resources in a computing system," as recited by Claim 1 from page 11 line 35 to page 12 line 6, which refers to Figures 2, 3, 4 and 5 and which states,

In another embodiment shown in flow chart 200 of Figure 2, the invention is a computing resource management method comprising, in step 201, establishing a pool of free computing resources 304 in a computing system, e.g., system 400 of Figure 4 or Utility Data Center 500 of Figure 5. A pool of free computing resources 304, as described herein, is a collection of computing resources that are representative of the computing resources in the operating computing resource pool 301 and are available for configuration for use in the operating computing pool 301, but which are not configured for any specific application in the operating computing resource pool 301 until a specific need arises.

The instant application describes an embodiment of "selecting a free computing resource from said pool of free computing resources to replace an operating computing resource in said computing system," as recited by Claim 1 on page 12 lines 8-14, which refers to Figures 2, 3, 4 and 5 and which states,

In step 202, a free computing resource is selected from the pool of free computing resources 304 to replace an operating computing resource 301 for example in computing system 400 or Utility Data Center 500. In one embodiment, the selection of the free computing resource is controlled by resource manager 302 based on a current need for resource in the operating computing resource pool 301, or based on instructions set forth in resource usage plan 306.

The instant application describes an embodiment of “configuring said selected free computing resource to operate in said computing system, after replacing said operating computing resource with said free computing resource in said computing system, wherein said free computing resources comprises resources that are not preconfigured for use in said computing system,” as recited by Claim 1 on page 12 lines 8-14, which refers to Figures 2 and 3 and which states,

In step 203, the selected free computing resource of step 202 is configured to operate in the computing system 300, after replacing the operating computing resource with said free computing resource in computing system 300. The free computing resources comprise resources not preconfigured for use in computing system 300.

Independent Claim 15 recites,

A computing resource management system comprising:
a pool of free computing resources in a computing system;
a pool of operating computing resources operating in said computing system; and
means for selecting a selected free computing resource from said pool of free computing resources to replace a first operating computing resource in said computing system; and
means for configuring said selected free computing resource to operate in said computing system after replacing said first operating computing resource with said selected free computing resource, wherein said free computing resources comprises resources that are not preconfigured for use in said computing system.

The instant application describes one embodiment of a computing resource management system at page 13 line 31 to page 14 line 3. The computing resource management system includes a pool of free computing resources 304 (Figure 3), a pool of operating computing resources 302 (Figure 3), a means for selecting, such as computing resource manager 301 (Figure 3), and a means for configuring, such as computing resource manager 302 (Figure 3).

The instant application teaches from page 11 line 37 to page 12 line 1 that system 400 of Figure 4 and a Utility Data Center 500 of Figure 5 are examples of a “computing system” recited by Claim 15.

The instant application describes one embodiment of a pool of free computing resources at page 12 lines 1-6, which refer to Figure 3 and which state,

A pool of free computing resources 304, as described herein, is a collection of computing resources that are representative of the computing resources in the operating computing resource pool 301 and are available for configuration for use in the operating computing pool 301, but which are not configured for any specific application in the operating computing resource pool 301 until a specific need arises.

A computing resource manager 301 depicted on Figure 3 and taught on page 13 lines 33-34 teach “means for selecting” recited by Claim 15. Step 202 provides a description of “...selecting a selected free computing resource from said pool of free computing resources to replace a first operating computing resource in said computing system,” as recited by Claim 15. Referring to Figures 2, 3, 4 and 5, the instant application states with respect to step 202 on page 12 lines 8-14,

In step 202, a free computing resource is selected from the pool of free computing resources 304 to replace an operating computing resource 301 for example in computing system 400 or Utility Data Center 500. In one embodiment, the selection of the free computing resource is controlled by resource manager 302 based on a current need for resource in the operating computing resource pool 301, or based on instructions set forth in resource usage plan 306.

The computing resource manager 302 depicted on Figure 3 and taught on page 13 lines 37-38 refer to “means for configuring” recited by Claim 15. Step 203 provides a description of “...configuring said selected free computing resource to operate in said computing system after replacing said first operating computing resource with said selected free computing resource, wherein said free computing resources comprises resources that are not preconfigured for use in said computing system,” as recited by Claim 15. Referring to Figures 2 and 3, the instant application states with respect to step 203 on page 12 lines 16-20,

In step 203, the selected free computing resource of step 202 is configured to operate in the computing system 300, after replacing the operating computing resource with said free computing resource in computing system 300. The free computing resources comprise resources not preconfigured for use in computing system 300.

Independent Claim 22 recites,

A computer-useable storage medium comprising computer-readable program code embodied therein for causing a computer system to implement a computing resource management method instructions, said program code including a resource manager module, said resource manager module comprising instructions for:

- monitoring a pool of free computing resources in a computing system;

- selecting a selected free computing resource from said pool of free computing resources to replace an operating computing resource in said computing system; and

- configuring said selected free computing resource to operate in said computing system after replacing said operating computing resource with said selected free computing resource, wherein said free computing resources comprises resources that are not preconfigured for use in said computing system .

The instant application states on page 13 lines 9-12 with respect to Figures 3, 4 and 5, "In one embodiment, the program code includes: a resource manager software 302 module wherein the resource manager module includes instructions for monitoring a pool of free computing resource 304 in a computing system 400, 500."

The instant application describes one embodiment of a pool of free computing resources at page 12 lines 1-6, which refer to Figure 3 and which state,

A pool of free computing resources 304, as described herein, is a collection of computing resources that are representative of the computing resources in the operating computing resource pool 301 and are available for configuration for use in the operating computing pool 301, but which are not configured for any specific application in the operating computing resource pool 301 until a specific need arises.

One embodiment of "selecting a selected free computing resource from said pool of free computing resources to replace an operating computing resource in said computing system," as recited by Claim 22 is described at page 12 lines 8-14 of the instant application which refer to Figures 2, 3, 4 and 5 and which state,

In step 202, a free computing resource is selected from the pool of free computing resources 304 to replace an operating computing resource 301 for example in computing system 400 or Utility Data Center 500. In one embodiment, the selection of the free computing resource is controlled by resource manager 302 based on a current need for resource in the operating computing resource pool 301, or based on instructions set forth in resource usage plan 306.

One embodiment of "configuring said selected free computing resource to operate in said computing system after replacing said operating computing resource with said selected free computing resource, wherein said free computing resources comprises resources that are not preconfigured for use in said computing system," as recited by Claim 22 is described at page 12 lines 16-20 of the instant application which refer to Figures 2 and 3 and which state,

In step 203, the selected free computing resource of step 202 is configured to operate in the computing system 300, after replacing the operating computing resource with said free computing resource in computing system 300. The free computing resources comprise resources not preconfigured for use in computing system 300.

Grounds of Rejection to be Reviewed on Appeal

1. In paragraph 7 of the Office Action, Claims 1-2, 4-16, 18-25 and 27-30 are rejected under 35 U.S.C. §102(e) as being anticipated by U.S. patent publication no. 2004/0078622 by Kaminsky et al. (referred to herein as "Kaminsky").

Arguments

1. Whether Claims 1-2, 4-16, 18-25 and 27-30 are anticipated under 35 U.S.C. 102(e) by Kaminsky (2004/0078622)

A. Scope and Content of the Cited Art Reference (Kaminsky)

Kaminsky states in the last 2 sentences of the abstract, "...client-assisted management of failure diagnosis and self-healing." Kaminsky states at paragraph 0027 to line 5 of paragraph 0029,

In operation, a communicative session can be established between an individual client 110 and a server 150 in the server farm 120. Specifically, upon receiving an initial request from the individual client 110, the network dispatcher, for example a front-end IP sprayer, a resource director or other such network device, can route an initial request to a selected one of the servers 150 in the server farm 120 according to any load-balancing or other server selection algorithm, such as a random selection a least recently used, or a round robin selection. Based upon the assignment of the selected one of the servers 150, a communicative session can be established between the client 110 and the selected one of the servers 150 during which course session affinity can be maintained between client 110 and the selected one of the servers 150.

In the course of the communicative coupling of client 110 and the selected one of the servers 150, request/response transactions can occur. Ordinarily, where the selected one of the servers can respond to requests from the client 110 in a suitable fashion, session affinity can be maintained. However, where the selected one of the servers 150 fails to respond to a request 190A, even where the failure occurs during an initial request to establish a session, the client 110 can attempt a retry 190B. Significantly, along with the retry request 190B, the client 110 can identify the selected one of the servers 150 as having failed to respond to the request 190A. Specifically, the identity of the selected one of the servers 150 can be included, for example as a cookie or within the retry request string.

In any case, upon detecting the retry request 190B, the network dispatcher 140 can assign a new one of the servers 150 to respond to the retry request 190B. More importantly, the new one of the servers 150 can undertake remedial measures in the selected one of the servers 150 (emphasis added).

Lines 8-12 of paragraph 0024 provide more information on what happens after a problem in a server is detected.

The network dispatcher process, upon receiving the retry, can again route the request to another server in the server farm. Additionally, the network

dispatching process can undertake remedial action in the failing server... (emphasis added).

B. Differences Between the Cited Art References and the Claimed Invention.

Referring to the above quoted sections (paragraph 0027 to line 5 of paragraph 0029 and lines 8-12 of paragraph 0024) of Kaminsky:

- 1) At lines 3-4 of paragraph 0027, Kaminsky states, "receiving an initial request from the individual client 110,"
- 2) At lines 6-10 of paragraph 0027, Kaminsky states, "route an initial request to a selected one of the servers 150 in the server farm 120 according to any load-balancing ... random selection." From this Appellant understands Kaminsky to teach that the servers associated with the server farm are operating before the selection was performed because it would not make sense to use a load balancing mechanism for selecting a free server "...from a pool of free computing resources," as recited by Claim 1. There would be no load to consider for a free computing resource or a pool of free computing resources. Further, since Kaminsky teaches random selection as one way of selecting a server, Appellant understands Kaminsky to teach that all of the servers associated with the server farm would need to be already configured and operational,
- 3) At lines 6-7 of paragraph 0028, Kaminsky states, "the selected one of the servers 150 fails to respond to a request 190A,"
- 4) At lines 10-12 of paragraph 0028, Kaminsky states, "the client 110 can identify the selected one of the servers 150 as having failed to respond to the request 190A,"
- 5) At lines 1-3 of paragraph 0029, Kaminsky states, "assign a new one of the servers 150 to respond to the retry request 190B." Kaminsky had discussed ways of selecting servers as explained under item 3 above. Appellant does not understand Kaminsky to discuss another way of selecting a new server for the remedial actions any where else in Kaminsky. Appellant reasons that if all of the servers are already configured and operating, as explained under item 3 above, then

Appellant understands Kaminsky to teach that the new server is also already configured and operating,

- 6) At lines 1-2 of paragraph 0029, Kaminsky states, "new one of the servers 150 can undertake remedial measures in the selected one of the servers 150." Appellant understands Kaminsky to teach that the new server is operating and configured. Further, Appellant understands Kaminsky to teach at lines 8-12 of paragraph 0024 remedial actions taken for a server that is in the process of failing. Appellant does not understand the remedial actions described in the last 4 lines of paragraph 0024 to include "configuring a selected free computing resource... after replacing said operating computing resource with said free computing resource..." Therefore, Appellant understands Kaminsky's remedial actions to emphasize that Kaminsky's new server is already configured.

THE OFFICE ACTION ASSERTS

The Office Action asserts that Kaminsky teaches "establishing a pool of free computing resources in a computing system" at lines 1-6 of paragraph 0026. Kaminsky states at lines 1-6 of paragraph 0026,

FIG. 1 is a block diagram of a server farm which has been configured for client-assisted diagnosis and self-healing in accordance with the inventive arrangements. The server farm 120 can include one or more servers 150, each server 150 hosting one or more computing processes 170 and associated data 180. (emphasis added).

For reasons already discussed herein, Appellant understands the portion of Kaminsky (lines 1-6 of paragraph 0026) cited by the Office Action to prove that Kaminsky teaches away from "establishing a pool of free computing resources in a computing system" (emphasis added).

The Office Action asserted that Kaminsky teaches "configuring said selected free computing resource to operate in said computing system, after replacing said operating computing resource with said free computing resource in said computing system, wherein said free computing resources comprises resources that are not preconfigured for use in said computing system," (emphasis added) as recited by Claim 1 at lines 1-5 of paragraph 0033. Kaminsky states at lines 1-5 of paragraph 0033,

In step 4, the sprayer or optionally, a doctor process, recognizing a need to assign a new server in the server farm to handle the requests of the client, can assign a next server in the server farm to handle subsequent requests from the client, including the retry request.

Lines 1-5 of paragraph 0033 do not appear to teach or suggest free computing resources let alone teach or suggest "wherein said free computing resources comprises resources that are not preconfigured for use in said computing system."

The Office Action also asserted that Kaminsky teaches "configuring said selected free computing resource to operate in said computing system, after replacing said operating computing resource with said free computing resource in said computing system, wherein said free computing resources comprises resources that are not preconfigured for use in said computing system," (emphasis added) as recited by Claim 1 at lines 5-7 of paragraph 0007 and paragraph 0009. Kaminsky states at lines 5-7 of paragraph 0007, "The crux of the IBM manifesto relates to eight principal characteristics of an autonomic computing system." It appears to Appellant that lines 5-7 of paragraph 0007 do not teach or suggest free computing resources let alone teach or suggest "wherein said free computing resources comprises resources that are not preconfigured for use in said computing system." Kaminsky states at paragraph 0009, "The system must be able to configure and reconfigure itself under varying and unpredictable conditions." Although Appellant understands Kaminsky to teach a system that configures and reconfigures itself, as already discussed herein, it appears to Appellant that Kaminsky's system does not teach free computing resources let alone teach or suggest "wherein said free computing resources comprises resources that are not preconfigured for use in said computing system."

RESPONSE TO ARGUMENTS

In the response to argument's section, the Office Action states, a pool of free computing resources is akin to a server farm with available computing resources which Kaminsky teaches ([0026, lines 1-6 and [0023], lines 6-10). Kaminsky certainly teaches reconfiguration on-the-fly of the available computing resources ([0033], lines 1-5, an available server is assigned, and by handling the request, its computing resources must be reconfigured...naturally not configured, as they are not doing

anything. These available computing resources simply must be reconfigured in order to execute (emphasis added).

The Office Action is assuming that the servers associated with Kaminsky's farm are not doing anything and therefore are not configured and therefore must be reconfigured in order to execute. However, as already explained herein, it appears to Appellant that Kaminsky's servers are operating otherwise it would not make sense to use a load balancing mechanism for selecting one. Further, it appears to Appellant that all of Kaminsky's servers must be configured otherwise it would not make sense to use random selection. Therefore, Appellant respectfully submits that the assumptions that the Office Action is operating under in rejecting Claim 1 are false. Further, it appears from the wording used in the response to argument's section that the Office Action is admitting that Kaminsky does not state that his new server was not pre-configured.

CONCLUSION

In summary, Appellant respectfully submits that the Office Action's rejections of the claims are improper as the rejection of Claims 1-2, 4-16, 18-25 and 27-30 does not satisfy the requirements of a prima facie case of anticipation as not all of the claim features are not met by the cited reference. Accordingly, Appellant respectfully submits that the rejection of Claims 1-2, 4-16, 18-25 and 27-30 under 35 U.S.C. §102(e) are improper and should be reversed.

For example, among other things, in teaching load balancing and random selection as a part of selecting servers, it appears to Appellant that Kaminsky requires the new server to already be operating and configured. Therefore, Kaminsky teaches away from "configuring said selected free computing resource to operate in said computing system, after replacing said operating computing resource with said free computing resource in said computing system, wherein said free computing resources comprises resources not preconfigured for use in said computing system," as recited by Claim 1.

Further, since Appellant understands Kaminsky to teach away from "configuring said selected free computing resource to operate in said computing system, after replacing said operating computing resource with said free computing resource in said computing system, wherein said free computing

resources comprises resources not preconfigured for use in said computing system” future Office Action should not combine Kaminsky with any other reference as a part of an obviousness rejection of Claim 1.

Therefore, Claim 1 should be patentable over Kaminsky. Independent Claims 15 and 22 should also be patentable over Kaminsky for similar reasons. Claims 2, 4-14 depend on Claim 1. Claims 16, 18-21 depend on Claim 15. Claims 23, 24, 27-30 depend on Claim 22. These dependent claims include all of the limitations of their respective independent claims. Further, these dependent claims include additional limitations which further make them patentable. Therefore, these dependent claims should be patentable for at least the reasons that their respective independent claims should be patentable.


In summary, the Appellant respectfully requests that the Board reverse the Examiner's rejections of Claims 1-2, 4-16, 18-25 and 27-30.

The Appellant wishes to encourage the Examiner or a member of the Board of Patent Appeals to telephone the Appellant's undersigned representative if it is felt that a telephone conference could expedite prosecution.

Respectfully submitted,

WAGNER BLECHER LLP

Date: 12/03/2007



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Claims Appendix

1. A computing resource management method comprising:

establishing a pool of free computing resources in a computing system;

selecting a free computing resource from said pool of free computing resources to replace an operating computing resource in said computing system; and

configuring said selected free computing resource to operate in said computing system, after replacing said operating computing resource with said free computing resource in said computing system, wherein said free computing resources comprises resources that are not preconfigured for use in said computing system.
2. The method of claim 1, wherein the configuring of said selected free computing resource further comprises:
configuring said selected free computing resource to operate in accordance with a configuration of said operating computing resource being replaced.
4. The method of claim 1, wherein said selecting and configuring said free computing resource is initiated automatically upon a failure of said operating computing resource in said computing system.
5. The method of claim 1, wherein said selecting and configuring said free computing resource is initiated in response to an end-user request for a changed operating computing resource in said computing system.
6. The method of claim 1, wherein said selecting and configuring of said free computing resource is based on a usage plan for using said free resources in said free pool of computing resources.

7. The method of claim 6, wherein said usage plan for using said free resources is implementable automatically in response to a failure of an operating computing resources in said computing system.
8. The method of claim 1, wherein said selecting and configuring said free computing resource to replace said operating computing resource occurs transparently to end-users in said computing system.
9. The method of claim 1, wherein said computing system comprises a Utility Data Center.
10. The method of claim 1, wherein said computing system comprises a computer network.
11. The method of claim 1, further including monitoring said computing system to detect failed operating computing resources.
12. The method of claim 11, further including relegating said failed operating computing resources to a pool of quarantined computing resources.
13. The method of claim 12, further including rehabilitating said failed operating computing resources for reprovisioning into said computing system.
14. The method of claim 1, wherein said computing resources comprises routers, servers, data storage systems and CPU's.
15. A computing resource management system comprising:
 - a pool of free computing resources in a computing system;
 - a pool of operating computing resources operating in said computing system; and

means for selecting a selected free computing resource from said pool of free computing resources to replace a first operating computing resource in said computing system; and

means for configuring said selected free computing resource to operate in said computing system after replacing said first operating computing resource with said selected free computing resource, wherein said free computing resources comprises resources that are not preconfigured for use in said computing system.

16. The computing resource management system of claim 15, wherein said means for configuring said selected free computing resource is operable to configure said selected free computing resource to operate in accordance with a configuration of said first operating resource being replaced.

18. The computing resource management system of claim 15, wherein said means for configuring said selected free computing resource is operable to automatically configure said selected computing resource to operate in said computing system upon a failure of said first operating computing resource in said computing system.

19. The computing resource management system of claim 15, wherein said means for configuring said selected free computing resource is operable to automatically configure said selected free computing resource in response to an end-user request for changing said first operating computing resource in said computing system.

20. The computing resource management system of claim 15, wherein said means for configuring said selected free computing resource is operable to configure said selected free computing resources transparently to an end-user in said computing system.

21. The computing resource management system of claim 15, wherein said means for configuring said selected free computing resources is operable to

configure said selected free computing resources based on a usage plan for using said free computing resources in said free computing resource pool.

22. A computer-useable storage medium comprising computer-readable program code embodied therein for causing a computer system to implement a computing resource management method instructions, said program code including a resource manager module, said resource manager module comprising instructions for:

monitoring a pool of free computing resources in a computing system;

selecting a selected free computing resource from said pool of free computing resources to replace an operating computing resource in said computing system; and

configuring said selected free computing resource to operate in said computing system after replacing said operating computing resource with said selected free computing resource, wherein said free computing resources comprises resources that are not preconfigured for use in said computing system.

23. The computer-useable storage medium of claim 22, wherein said resource manager module includes instructions for monitoring said operating computing resources in said computing system.

24. The computer-useable storage medium of claim 22, wherein said resource manager module includes instructions for detecting failures of said operating computing resource in said computing system.

25. The computer-useable storage medium of claim 22, wherein said resource manager module includes instructions for configuring said selected free computing resource to operate in accordance with a configuration of said operating computing resource being replaced.

27. The computer-useable storage medium of claim 22, wherein said resource manager module includes instructions for selecting and configuring said free computing resource automatically upon detecting a failure of said operating computing resource in said computing system.

28. The computer-useable storage medium of claim 22, wherein said resource manager module includes instructions for selecting and configuring said free computing resource based on an end-user request for operating computing resource in said computing system.

29. The computer-useable storage medium of claim 22, wherein said resource manager module includes instruction for selecting and configuring said free computing resource transparently to an end-user in said computing system.

30. The computer-useable storage medium of claim 22, wherein said resource manager module includes instruction for selecting and configuring said free computing resource based on a usage plan for using computing resources from said free computing resources pool.

Evidence Appendix

None

Related Proceedings Appendix

None